



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,334	06/02/2005	Pekka Strommer	783.1011	3452
21831	7590	08/01/2006	EXAMINER	
WOLF BLOCK SCHORR AND SOLIS-COHEN LLP			MIDKIFF, ANASTASIA	
250 PARK AVENUE			ART UNIT	
NEW YORK, NY 10177			PAPER NUMBER	

2882

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8/2

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/537,334		STROMMER ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Anastasia Midkiff		2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02 June 2005</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "25" and "21" have both been used to designate the screw attached to the sensor. (See Line 11 of Page 7 of the specification. Examiner notes that item 21 is a screw, but the one attached to item 50 is screw 25.) Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities:

Beginning on line 23 on Page 9 of the specification, and throughout the remainder of the specification, the applicant has used "510, 510', ..." to designate sensor modules, wherein the use of "...", while grammatically correct, suggests that there may be other items missing from the specification at this location. For the sake of

clarity, Examiner respectfully requests that Applicant use --510-540, 510'-- in the place of "510, 510'..." in every instance of its appearance in the specification.

Appropriate correction is required.

### ***Claim Objections***

Claims 3, 5, 6, 10, 11, 13, and 16-30 are objected to because of the following informalities:

With respect to Claims 3 and 19, Line 3, replace "mechanically" with --mechanically--.

With respect to Claim 5, Line 6, replace "modified" with --modified--.

With respect to Claim 6 Line 3, Claim 10 Line 4, and Claim 25 Line 4, insert the term --to-- between "corresponding" and "the distance".

With respect to Claim 11, Line 2, replace "swivelled" with --swiveled-- and in Line 3 replace "swivelling" with --swiveling--.

With respect to Claim 13, Line 4, replace "swivelling" with --swiveling--.

With respect to Claims 26, 27, 29, and 30, the claims refer to an apparatus, wherein the independent claims referred to are method claims.

Further with respect to Claims 16-30, remove item numbers from the claims for the sake of consistency with Claims 1-15.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to Claim 1, Line 12, the use of the phrase "its/their trajectory" renders the claim indefinite as it is unclear what item in the claim is being referred to by "its" and "their". Examiner suggests replacing the terms "its" and "their" with the proper nouns intended to be referred to, *i.e.*, --in such a way that the trajectory of the sensor or sensors in direction of scanning movement of the beam becomes essentially linear--.

***Examiner notes that the use of the indefinite pronouns "it", "their", and "[of which]" and "them" have been used in numerous instances throughout the claims, and Applicant is requested to replace all occurrences of indefinite pronouns with the proper noun required in each instance of indefinite pronouns used in the claims.***

Further with respect to Claim 1, in line 3 the phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. Additionally, Lines 1-2 and 7 of Claim 1 recite, "the radiation", "the object", and "the active surface", wherein there is insufficient antecedent basis for these limitations in the claim.

With respect to Claim 2 Lines 2-3, the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

Further with respect to Claim 2, Line 3, the limiting meaning of the term "programmatically" is not understood.

With respect to Claim 4, Lines 3 and 5 recite, "the transmission element," and Line 7 recites "the said transmission element" wherein there is insufficient antecedent basis for this limitation in the claim. Examiner suggests replacing "the" with --a--.

With respect to Claim 5, Line 3 recites, "such a control element," wherein there is insufficient antecedent basis for this limitation in the claim.

With respect to Claim 6, Line 4 recites, "is moved otherwise" wherein the limiting meaning of "otherwise" is not understood.

With respect to Claim 7, Line 2 recites, "the said transmission or control element" wherein there is insufficient antecedent basis for "the...control element" in the claim. Examiner suggests rewriting claim dependency so that Claim 7 depends from Claim 5.

Further with respect to Claim 7, Lines 3-4 recite, "the focus of rotation of which being situated on the level of the focus of the radiation source," wherein this phrase is nonsensical, rendering the claim indefinite.

With respect to Claim 8, Line 3 the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

Further with respect to Claim 8, Line 4, the limiting meaning of the term "programmatically" is not understood.

With respect to Claim 10, Line 3 recites, "the collimation element," and "the curved path," wherein there is insufficient antecedent basis for these limitations in the claim. Examiner suggests rewriting claim dependencies so that Claim 10 depends from Claim 8 or from Claim 9, or replacing "the" with --a--.

With respect to Claim 12, Line 3, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Further with respect to Claim 12, Lines 4-5 recite, "the focus of rotation of which being situated on the level of the focus of the radiation source," wherein this phrase is nonsensical, rendering the claim indefinite.

With respect to Claim 13, Lines 3-4 recite, "the swivelling movement of the radiation source" wherein there is insufficient antecedent basis for "the swivelling movement."

With respect to Claim 14, Line 5 recites, "in relation to this direction," rendering the claim indefinite insofar as it is not understood what direction "this direction" refers to.

With respect to Claim 15, Line 3 recites, "the essentially plane-like lower compression paddle structure," wherein there is insufficient antecedent basis for this limitation in the claim. Examiner suggests replacing "the" with --an--.

Further with respect to Claim 15, Line 3-4 recite "in its close proximity" rendering the claim indefinite insofar as it is not understood what is referred to by "its" and it is not understood what "it" is in close proximity to.

With respect to Claim 16, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

Further with respect to Claim 16, Line 10 recites, "the active sensor surface" and Lines 13-14 recite "the said active sensor surface" wherein there is insufficient antecedent basis for this limitation in the claim. Examiner suggests replacing "the" with --an--.

With respect to Claim 17, Line 2, the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

Further with respect to Claim 17, Line 2, the limiting meaning of the term "programmatically" is not understood.

With respect to Claim 22, Line 4 recites, "or other means" rendering the claim indefinite, as it is not understood what limitation is intended to be encompassed by "other means."

With respect to Claim 23, Line 4 recites, "said transmission element and/or control element" wherein there is insufficient antecedent basis for these limitations in the claim. Further, the terms "and/or" in Line 4 and "may" in Line 5 render the claim



indefinite because it is unclear whether the limitations following the phrases are part of the claimed invention.

Further with respect to Claim 23, Lines 2-3 recite, "the focus of rotation of which being situated on the level of the focus of the radiation source," wherein this phrase is nonsensical, rendering the claim indefinite.

With respect to Claim 24, Line 3 recites, "the collimator element" wherein there is insufficient antecedent basis for this limitation in the claim. Examiner suggests replacing "the" with --a-- .

With respect to Claim 25, Lines 2-3 recite, "the collimator element" wherein there is insufficient antecedent basis for this limitation in the claim. Examiner suggests replacing "the" with --a-- .

With respect to Claim 26, Line 3, the phrase, "at least the other are arranged" renders the claim indefinite as it is unclear what "at least the other" refers to.

With respect to Claim 28, Line 2, the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. Further, the limiting meaning of the term "programmatically" in Line 2 is not understood.

Further with respect to Claim 28, Line 3 recites, "the collimator elements" wherein there is insufficient antecedent basis for this limitation in the claims.

With respect to Claim 29, Line 5 recites, "the active surface of each module is positioned also in this direction," wherein the phrase "in this direction" renders the claim indefinite as it is not understood what direction "in this direction" refers to.

With respect to Claim 30, Lines 3-4 recite "paddles (16, 17) or equivalent having essentially plane like surfaces" wherein the use of the term "or" renders the claim indefinite as it is unclear whether the "plane like surface" is intended to be a limitation on the equivalent only or to both the paddles and to their equivalent.

Claims 3, 9, 11, 13, 14, 18-21, and 27 are rejected based on their dependency upon Claims 1, 12, 16, and 26.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 and 16-29, as they are best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent to Tsutsui et al. (USP# 4,928,297).

With respect to Claims 1 and 16, Tsutsui et al. teach a diagnostic digital mammography imaging apparatus, and the method for its use, in which radiation (6) from a source (1) that has passed through an object (1) to be imaged is detected on a sensor arrangement (4) containing at least one sensor (Column 1, Lines 50-51), which contains one or more elongated sensor modules (Figure 1), wherein the said sensor module contains one or more pixel columns which receive image data (Column 1, Lines 10-40), in which method the object to be imaged is positioned essentially motionless in

the area between the source and the detector arrangement (Figure 5 and Column 4 lines 39-48), and the object is scanned across with a beam which originates from the radiation source (Column 4 Lines 39-48), the focus (2) of the source being essentially motionless in space (Column 4, Lines 1-5), the beam being limited to be narrower than the object to be imaged (3, Figures 4-7) and adapted essentially to an active sensor surface of the sensor (Figures 4-7, Column 4 Lines 14-20), and in which method the sensor is moved in synch with the scanning movement of the beam (Column 3, Lines 16-20) while at the same time the said active surface is kept essentially at right angles to the beam on a plane formed by the scanning movement of the beam (Column 4 Lines 39-46), wherein movement of the sensor or sensors is implemented by continuously adjusting the distance of the sensor or sensors from the radiation source with a guide (12) so that the sensors trajectory in direction of the scanning movement of the beam becomes essentially linear (Figures 4-7 and Column 4 Lines 39-46).

With respect to Claims 2 and 17, Tsutsui et al. further teach that the movement of the sensor (4) is realized by one or more actuators implicitly beginning the movement (Column 4 Lines 61-68 and Column 5 Lines 1-6), and actuators may be operated programmatically, as known for a scanning device of this type.

With respect to Claims 3 and 18, Tsutsui et al. further teach at least a part of the movements of the sensor (4) are realized by mechanically forced control of a pendulum arm (11, Figures 4-7, and Column 4 Lines 40-44 and 61-68).

With respect to Claims 4, 19, and 20, Tsutsui et al. further teach the said at least one sensor (4) is moved in such a way that the sensor is connected to a transmission

element (at 12) that is moved along an essentially linear trajectory (Figures 4-7) and the said connection is realized in such a way that the connection enables mutual rotational movement of the transmission element and the sensor in the direction of linear movement (Figures 4-7), whereby the said condition of perpendicular orientation of the sensor surface is realized by tilting the sensor or sensors with respect to the transmission element (Column 4, Lines 44-46).

With respect to Claims 5 and 21, Tsutsui et al. further teach the said at least one sensor (4) is arranged in functional connection with a control element (at 12) which connection enables altering the distance between the sensor and the control element in the direction of the beam (via 13 and 13'), the said control element is moved along a curved trajectory (Figures 5 and 7) and the distance between the said at least one sensor and the control element is modified during the scanning of the beam in such a way that the trajectory of the sensor becomes linear (Figures 5 and 7, and Column 4 lines 39-46).

With respect to Claims 6 and 22, Tsutsui et al. further teach that the said control element (at 12) is moved in a guide groove (12), the curvature of radius of said groove corresponding to (via 13 and 13') the distance between the control element and the focus of the radiation source (Figures 4-7).

With respect to Claims 7 and 23, Tsutsui et al. further teach the said transmission element (at 12) is moved integrated with a pendulum arm (11) so that the sensor or sensors move in the direction of the longitudinal axis of the pendulum arm (Figures 4-7),

the focus of rotation of the pendulum arm being situated on the level of the focus of the radiation source (Figures 4-7).

With respect to Claims 8 and 26, Tsutsui et al. further teaches the scanning movement of the beam (6) is realized by moving a collimation element (3) that limits the beam (Figures 4-7), implicitly requiring an actuator to begin said movement (Column 4 Lines 39-46 and 66-68, and Column 5 Lines 1-6), wherein said actuator may be operated programmatically as known for scanners of this type.

With respect to Claim 9 and 24, Tsutsui et al. further teach a collimation element (3) that limits the beam (Figures 4-7) is moved essentially in parallel with the linear movement of the sensor (Column 4, Lines 39-46).

With respect to Claims 10 and 25, Tsutsui et al. further teach that the scanning movement of the beam is realized by moving a collimation element (3) which limits the beam along a curved path (Figures 4-7), the curvature of radius of said path corresponding to the distance (S) between the collimator and the focus of the radiation source (Column 4, Lines 1-20).

With respect to Claim 11, Tsutsui et al. further teach that the radiation source (1) is swiveled (Column 4 Lines 39-46) and the scanning movement of the beam is realized by moving the collimation element (3) in mechanical contact (via 11) with the swiveling movement of the radiation source (Figures 4-7 and Column 4 Lines 39-46).

With respect to Claims 12 and 27, Tsutsui et al. further teach that the movement of the collimation element (3) and the linear movement of the sensor (4) are synchronized mechanically by connecting them to the same pendulum arm (11) the

Art Unit: 2882

focus of the pendulum arm being situated at the level of the focus of the radiation source (Figures 4-7), wherein said pendulum movement is implicitly begun by actuators (Column 5 Lines 39-46 and 66-68, and Column 5 Lines 1-6).

With respect to Claim 13 and 28, Tsutsui et al. further teach that the movement of the collimation element (3) and sensor (4) in the direction of the scanning movement of the beam is synchronized (Column 4, Lines 39-46) by connecting said collimation element and said sensor or sensors mechanically (via 11) to a swiveling movement of the radiation source (1), wherein said collimator elements and sensors movements are implicitly begun by actuators (Column 4 Lines 39-46 and 66-68, and Column 5 Lines 1-6).

With respect to Claims 14 and 29, Tsutsui et al. further teach that the sensor (4) is arranged to be formed in the direction at right angles to the plane formed by the scanning movement of at least one sensor column (Figures 4-7) containing two or more modules (Column 1 Lines 10-40) and the active surface of each of the modules is also positioned at right angles with respect to the focus of the beam (Figures 4-7).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15 and 30, as they are best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al., as for Claims 1 and 16 above, and in view of U.S. Patent Application Publication to Francke et al. (PGPUB# 2003/0174806).

With respect to Claims 15 and 30, Tsutsui et al. teach most of the elements of the invention, including an apparatus and method for digital imaging, said scanners known to be used in mammography, and the essentially linear movement of the sensors (4) located under an object to be imaged (Figures 4-7), but do not specifically teach that object is positioned by two radiolucent compression paddles or equivalent with essentially plane-like surfaces, and wherein the essentially linear movement of the sensors is realized under the lower paddle structure.

Francke et al. teach a digital mammography scanning apparatus and the method for its use wherein an object to be imaged (Paragraph 21) is placed between two radiolucent compression paddles (84, 85, Paragraphs 29 and 36-39, and Figure 1), said paddles located above a sensor arrangement with an essentially linear movement (Paragraph 40) to provide a lockable, positionable support for the object (Paragraph 37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the compression paddles of Francke et al. in the apparatus and method of Tsutsui et al. to prevent object movement during scan, said movement known to create image artifacts, thereby improving image quality.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anastasia Midkiff whose telephone number is 571-272-5053. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ASM  
7/21/06

*ASM*

*PP 7/24/06*

*Edward J. Glick*  
EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER